2020

نماذج بايو ترم ثالث

Second year /third term

(molecular, GIT,respiration)

(MSQ, Full blanket and essays)

إعداد وتجميع :

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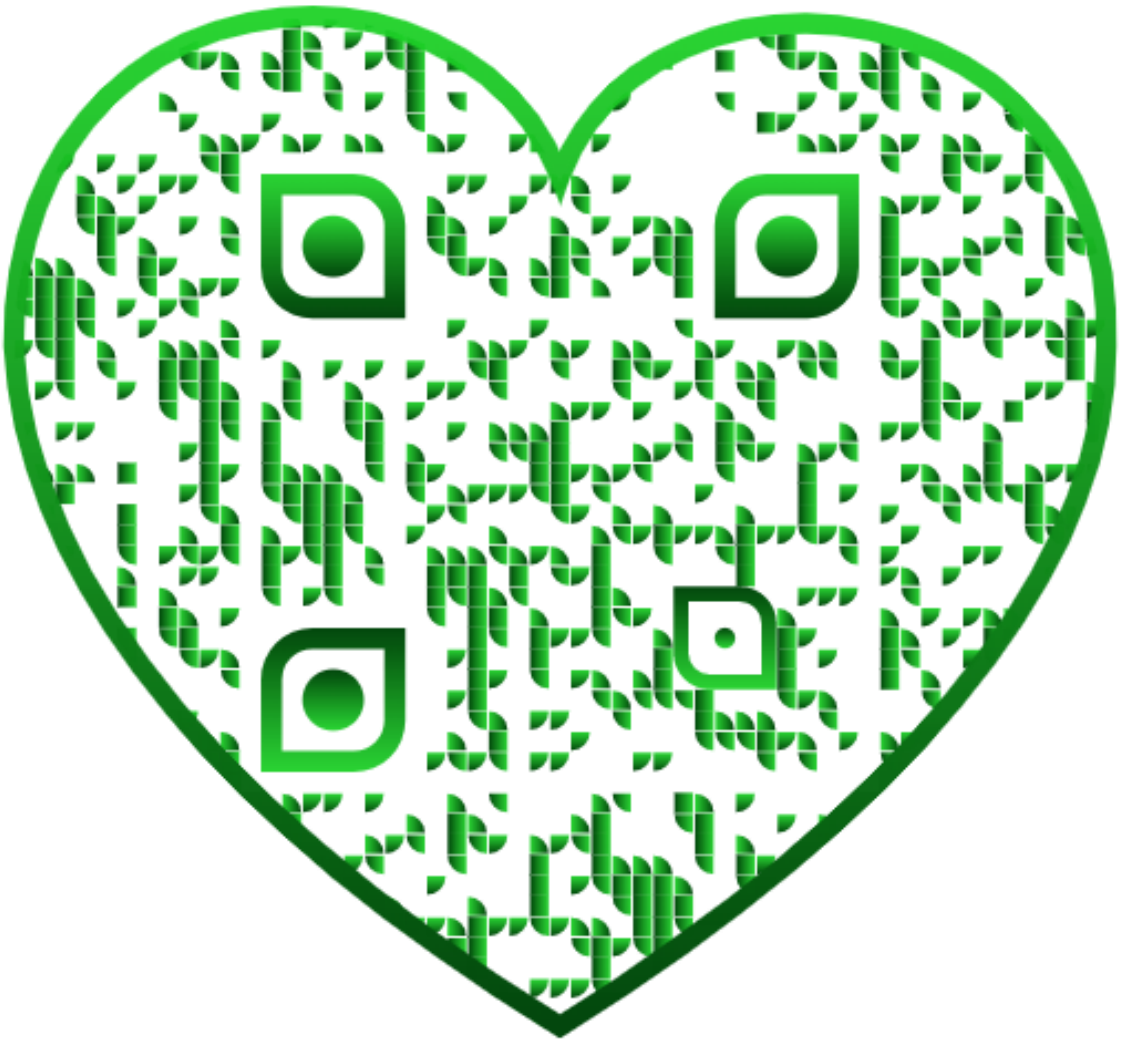

First: molecular biology

1-The genetic code is:

a) Ambiguous

b) Overlapping

c) Degenerate

d) None specific

e) None of the above

2. In contrast to DNA polymerase, RNA polymerase:

a) Fills the gap between Okazaki fragments

b) Works only in the 5'to 3'direction

c) Edits as it synthesizes

d) Synthesize RNA primer to initiate DNA synthesis

e) Adds nucleoside monophosphates to the growing polynucleotides

3. A promoter site on DNA:

a) Transcribes repressor

b) Initiates transcription

c) Codes for RNA polymerase

d) Regulates termination

e) Translates specific proteins

4. The portion of DNA which is transcribed but not translated is called:

a) Insert

b) Intron

c) Vector

d) Exon

e) Ribozyme

5. Which of the following sequences is complementary to TGGCAGCCT:

a) TCCGACGGT

b) ACCGTCGGA

c) ACCGUCGGA

d) AGGCTGCCA

e) TGGCTCGGA

6. tRNA reacts specifically with:

a) Specific aminoacyl-adenylates

b) ATP

c) Free amino acids

d) The Golgi apparatus

e) Nuclear DNA

7. The polymerase chain reaction (PCR) requires:

a) A double stranded DNA at least partially of known sequence

b) A synthetic non-complementary RNA

c) Dideoxynucleotide triphosphates

d) Reverse transcriptase

e) A pair of specific mismatched DNA primer

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8-PRPP is:

a) An intermediate in de novo purine biosynthesis

b) Involved in biosynthesis of NAD+ and NADP+

c) An intermediate in pyrimidine biosynthesis

d) Intermediate in the salvage pathway

e) All of the above is correct

9- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5'to 3' direction

b) Temple strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) Synthesis occurs in both strands

e) It is a conservative process

10-phosphoribosyl-1-pyrophosphate (PRPP) is an intermediate in:

a) The de novo synthesis of purine nucleotides

b) The de novo synthesis of pyrimidine nucleotides

c) The salvage pathway for the synthesis of purine nucleotides

d) Both A and C

e) All of the above are correct

11- The sigma subunit of prokaryotic RNA polymerase:

a) Is required to hold the subunits of the core enzyme together

b) Remains with the RNA polymerase until the termination of transcription

c) Is required for proper recognition of promoter

d) Contains the active site for RNA synthesis

e) Is required for termination of transcription

12- An anticodon is:

a) The part of DNA molecule that codes termination

b) A 3-nucleotide sequence of messenger RNA molecule

c) A specific nucleotide sequence of a tRNA molecule

d) A nucleotide triplet of a ribosomal RNA molecule

e) Covalently bound to colon

13- The polymerase chain reaction (PCR) requires:

a) A double stranded DNA of totally unknown sequence

b) A pair of synthetic RNA primers

c) Dideoxynucleotide triphosphates

d) Reverse transcriptase

e) Both B and D are correct

14- In lagging DNA strand:

a) There are several RNA primers

b) DNA synthesis is discontinuous

c) Polymerization proceeds in 5'3' direction

d) DNA polymerase III is needed

e) All of the above is correct?

15- Which of the following statements about DNA ligase is correct?

a) DNA ligase seals the gaps between RNA primers and Okazaki fragments

b) DNA ligase makes single stranded nicks which relieve the supercoiling

c) The energy source for DNA ligase can be either NADPH or GTP depending

d) on the species

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e) DNA ligase joins the free 3' hydroxyl on the Okazaki fragment to the 5'

f) carbon on the growing strand

e) It is classified as endonuclease enzyme

16- DNA synthesis and RNA synthesis differ in:

a) Production of a complementary polynucleotide from a template

b) Release of pyrophosphate as a reaction product

c) Synthesis proceeds in the 5' to 3' direction

d) Proofreading to eliminate errors

e) First nucleotides incorporated are RNA

17-The Polymerase Chain Reaction

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for DNA replication

e) All of the above is correct

18- Initiation of protein biosynthesis:

a) Involves elongation factor 2

b) Starts by association of the two ribosomal units

c) Requires binding of the ternary complex to 40S subunit

d) Does not involve association of the two ribosomal subunits

e) Requires CTP

19- Amino-acyl-tRNA synthetase:

a) Recognizes codons on mRNA

b) Recognizes the anti-codon on the tRNA

c) Catalyses the binding of amino acid to its respective tRNA

d) Recognizes the Darm of the specific tRNA

e) Both C and D are correct

20- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5' to 3' direction

b) Template strand is read in a 3' to 5' direction

c) Lagging strand synthesis is discontinuous

d) Synthesis occurs in both strands

e) It is a conservative process

21- Which of the following is needed for a polymerase chain reaction?

a) A thermostable DNA polymerase

b) Helicase

c) Primase?

d) One of the target DNA strands

e) Reverse transcriptase

22- The following is true about DNA-dependent RNA polymerase:

a) Pol I is responsible for synthesis of rRNA and it is less sensitive to alphab) amanitin

c) Pol II is responsible for synthesis of mRNA

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d) Pol III is responsible for synthesis of tRNA

e) RNA Polymerases have unwindase activity

f) All of the above is correct

23- In eukaryotes, hnRNA's undergo elaborate post-transcriptional processing as follows:

a) tRNA is charges with its respective amino acids

b) mRNA is capped at the 5' end

c) rRNA is polyadenylated at the 3' end

d) Intron sequences are spliced by snRNA's

e) Exons are removed and intros are ligated

24- Reverse transcriptase exhibits the following functions:

A) RNA directed DNA synthesis

b) DNA dependent RNA synthesis

c) DNA dependent DNA synthesis

d) Proofreading of cDNA

e) None of the above is correct

25- Transcriptional Activator Proteins:

a) Transcribe a messenger off a DNA template

b) Bind to ribosomes to activate the production of specific proteins

c) Are produced during an infection of bacteria by a phage

d) Are essential to function of transfer RNA's during translation

e) Bind regions near a eukaryotic gene and allows an RNA polymerase to

f) transcribe a gene

26- The Wobble Hypothesis says:

a) There is loose pairing between the 5' end of a single codon and the 3' end of

b) more than one anticodon

c) There is loose pairing between the 5' end of a single anticodon and the 3'

d) end of more than one codon

27-What effect would this mutation most likely cause?

a) The RNA will not be translated

b) The RNA transcribed from the gene will be much longer than normal

c) The polypeptide produced will be shorter than expected

d) The polypeptide produced will have extra amino acids

e) No effect at all

28- What is the maximum number of amino acids in a peptide coded by the polyribonucleotide

a) Six

b) Two

c) Three

d) Four

e) Five

29- All of the following statements about ribosomes are correct except:

a) All ribosomes have two subunits

b) Eukaryotic cells have 80S ribosomes and protein synthesis on these

c) ribosomes can be inhibited by cycloheximide

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d) Prokaryotic cells have 70S ribosomes and protein synthesis on these

e) ribosomes can be inhibited by chloramphenicol

30- Which of the following is mimicked by the antibiotic puromycin?

a) Peptidyl-tRNA

b) Aminoacyl-tRNA

c) Peptidyl transferase

d) Translation release factors

e) Formylmethionyl-tRNA

31-. Deamination of cytosine in mRNA produces:

a) An insertion mutation

b) A deletion mutation

c) A point mutation

d) A purine

e) Thymine

32-which of the following mutations would be the LEAST likely to result in a faulty protein?

a) A single base change in codon 12 complementary to nucleotide 36 in mRNA

b) A nonsense mutation in the codon for amino acid 37

c) Deletion of three bases of the codon for amino acid 19

d) A single base change such that amino acid 12 is now leucine rather than

33- Transcription of genes that code for proteins is accomplished by:

a) RNA polymerase III in eukaryotes

b) Reverse transcriptase

c) RNA polymerase I in eukaryotes

d) Both A and B are correct

34- The requirements of RNA polymerase for synthesis of RNA include:

a) RNA primer

b) DNA template

c) All four deoxyribonucleoside triphosphates

d) Both A and B

e) Both B and C

35-In PCR:

a) The technique is used for DNA cloning

b) RNA polymerase is needed

c) Primers should be in excess

d) All steps are performed at room temperature

e) Radiolabeled probe is needed

36- Which of the following molecules is NOT a component of the 43S pre-initiation complex?

a) GTP

b) Eukaryotic initiation factor 2 (IF-2)

c) mRNA[1]

d) Methionyl-tRNA

e) 40S sub-unit

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37-Which of the following uses ATP directly?

a) Formation of the 40S initiation complex

b) Binding of the amino acyl transfer RNA to the ribosome

c) Synthesis of amino acyl-tRNA

d) Activation of the amino group for peptide bond synthesis

e) Movement of mRNA on the ribosome

38- A mRNA coding for eukaryotic polypeptide chain is attached to seven ribosomes, which of the following is TRUE for this polyribosome complex?

a) The ribosome nearest to the 5' end of the mRNA is carrying a longer

b) polypeptide chain than is the ribosome nearest to the 3' end

c) The ribosome nearest to the 3' end of the mRNA is carrying a longer

d) polypeptide chain than is the ribosome nearest to the 5' end

39- In general, eukaryotic RNA processing can be best described by the following:

a) All RNA transcripts are finally processed in the nucleus

b) It results in the addition of nucleotides to the primary transcript of

c) ribosomal RNA

d) It results in the addition of formyl groups to methionine

e) It includes the addition of a tail of polyadenylic acid at the 5' end

f) It includes the modification of nucleotides in transfer RNA

40- Topoisomerase enzymes are important in the replication of DNA because they:

a) Covalently join Okazaki fragments

b) Relax supercoiled DNA created by helicase action

c) Degrade nucleosomal histones

d) Proofread newly synthesized DNA

e) Synthesize the RNA primer

41- Which of the following is not true for both DNA polymerase and RNA polymerase?

a) Both require a template

b) Both reactions produce pyrophosphates as a product

c) Both add 5' nucleotides to 3' hydroxyl groups

d) Both utilize 5' nucleoside triphosphates as substrates

e) Both require a primer

42- Codons on mRNA may be accurately described by all of the following except:

a) They are read in a non-overlapping fashion

b) They can form hydrogen bonds with tRNA

c) An amino acid can have more than one codon

d) 6 successive bases along the mRNA can code for 4 amino acids

e) The same codon specifies the same amino acid in almost all species

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43-. The RNA primer in replication differs from other RNA molecules in that it:

a) Contains T instead of U

b) Is formed by DNA polymerase I

c) Found in a form of DNA-RNA double-stranded hybrid

d) Contains a triphosphate group at the 5' end immediately after synthesis

e) Is synthesized in the 3' 5' direction

44- The role of peptidyl transferase in protein biosynthesis is to:

a) Promote the movement of peptidyl-tRNA from the A site to the P site on

the ribosome

b) Promote the movement of aminoacyl-tRNA from the P site to the A site on

the ribosome

c) Catalyze the ejection of free tRNA from the P site on the ribosome

d) Catalyze the formation of peptide bonds

e) Cause recognition of termination codons by release factors

45- How does chloramphenicol work to inhibit protein synthesis?

a) It binds to 23S rRNA?

b) It causes mutations in mRNA making it unusable

c) It intercalates into the DNA blocking RNA polymerase

d) It binds to the sigma factor preventing initiation

e) It inhibits the peptidyl-transferase activity of 28S (a component of 60S subunit)

46- The following is not true about polymerase chain reaction:

a) Requires specific primers to amplify a DNA sequence

b) Involves cyclic thermal denaturation and reannealing of DNA

c) Helps diagnosing sub-clinical infections

d) Exploits Taq polymerase for in vivo replication

e) All of the above is correct

47- The polymerase chain reaction (PCR)

a) Uses flanking primers

b) Uses restriction enzymes

c) Uses varying temperatures

d) All of the above

e) Both A and C

48- If the PCR reaction is 100% efficient, one copy of template DNA should be amplified to …… copies after n cycles:

a) 2n

b) n2

c) 2n

d) 10n

e) I can't tell having this information

49- All of the following statements concerning replication of DNA in prokaryotes are true except:

a) Synthesis of new strands occurs in a 5' to 3' direction

b) Template strand is read in a 3' to 5' direction

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c) Lagging strand synthesis is discontinuous

d) A primer is not required

e) Synthesis occurs in both strands

50- Select the incorrect statement. Messanger RNA:

a) Is translated in the direction 5'to 3'

b) Is often derived from a large precursor by processing in eukaryotes

c) Is synthesized in the direction 3' to 5'

d) Has a Poly A Tail

e) Is a Heterogeneous Molecule

51- In DNA Replication:

a) The newly synthesized DNA strand is growing in direction 5'3'

b) DNA synthesis by the leading strand is continuous

c) DNA Helicase facilitates processive unwinding of double strands d)

Origin of replication is identified by double strand DNA binding protein

d) All of the above is correct?

Full the blanket:

Q. Write the suitable word for each of the following statements:

1- The control the development of organ during early embryogenesis .....

2- They are acting as silencer for gene expression and /or mRNA translation and considered as genome immune system…….

3- In prokaryote called Oric and in eukaryotic called autonomous replicating sequences……

4. The protein assembly at the origin of replication……

5. In higher organisms is protective and defects in it result in inherited disease and cancer .....

6- Adenine of one strand of DNA will pair with thymine of the opposite strand by two hydrogen bonds while guanine will pair with cytosine by three hydrogen bonds……

7- They are the precursor molecules that can generate mRNA and tRNA …….

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8- One function of it may serve as an entry site for RNA polymerase……

9. Corrects error made when DNA is copied .....

10- Used to replace regions of damaged DNA up to 30 bases in length…….

11-Permanent change in DNA .....

12- Special sequence present at the end of DNA and not carry any genetic information .....

13- The process of synthesis of RNA from DNA template .....

14-A particular region at which RNA polymerase binds to DNA .....

15-An important mechanism for repairing damage DNA as a result of ionizing radiation or oxidative free radical generation .....

16-An amino acid may have more than one codon .....

17-pseudogene can be defined as ……

18-the most methylated base is …… and…….

19-the prime can be defined as.....

20-the initiation of replication in prokaryotic is..... while initiation codon in translation is…….

21-nick translation can be defined as.....

22-the main cause of mutation

a- ……. B- …….

23-some feature of codon are:

a-.....

b-..... c-……

24-non-sense mutation mean…….

25-mismatch repair correct error made from..... but excision repair correct

error made by.....

26-the pyrimidine dimer induced by UV can be repair by .....

27- Genetic codon define as .....

28-. Mismatch repair made with errors during .....

29-. The site of initiation during replication in eukaryote cells called .....and in prokaryote cells called ……..

30-. The post transcriptional modification of mRNA are .....and .....

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31. Degeneracy of the genetic codon define as .....

32-. Palindrome sequence is .....

33-. Leading strand define as .....

34-. Types of supercoiling of linear DNA .....

35- Homo gene can be define as .....

36-Central dogma is .....

37-pseudogene Can be defined as.....

38- Then prime can be defined as me .....

39-The initiation site of replication in prokaryotic cell is.....

40- Non acceptable missense occur when.....

41-. Nucleotide excision repair correct error made by.....

42-Non sense Mutation is

43-Mismatch repair correct error Cause by ..... but pyrimidine dimer repair is.....

44-. Replication means.....

45- the second stage of replication is .....

46-function of polymerase. is proofreading which mean.....

47-Code gene Can be defined as.....

48-Function of 5———3 exoneuclease is ..... while function of 3-— 5 exoneuclease is .....

الإجابات:

1- homeotic gene

2-small interference RNA

3-origin of riplication

4-Replisomes

5- methylation process of DNA

6- chargaff's rule or Base pairing

7-ht.nuclear RNA

8-Inherence

9- Mismatch repair

10- Nucleotide excision repair

11- Mutation

12- Telomeres

13-transcription

14-promoters

15-Double strand break repair

16-degeneracy of genetic code

17-not expressed gene

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18-cysteine- Guanine

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47-

48- Excision repair – proofreading activity

Essays :

Write short note on the following:

1-siRNA

2-second step in replication

3- termination of transcription by p(RHO) protein.

4-Enumerate the Mechanism of DNA repair

5- illustrate the 4th step of translation

6-write about :

-non –sense mutation

-degenerate codon

7-DNA polymerase enzyme

8-five properties of genetic code.

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Second :GIT

1- Pigment stones caused by :

a) Excess cholesterol in bile

b) Excess bile salts in bile

c) Chronic hemolysis

d- Estrogenic influences

Note\the chronic hemolysis increases the amount of direct or conjugate bilirubin in bile that will accumulate and lead to pigment stone

2- One cause of duodenal ulcer is :

a) Increase the secretion of hormone that stimulate enough alkaline

b) Rapid emptying of gastric contents into the duodenum

c) Delay emptying of gastric contents into the duodenum

d) Gastric hypo secretion

Note\as the mucous lining of the duodenum is very delicate it will be ulcerated by the rapid gastric emptying

3- NSAIDS effect on stomach and act by:

a) Stimulating cyclo-oxygenase enzyme activity

b) Increase the prostaglandins in the stomach and duodenum?

c) Inhibiting somatostatin

d) Inhibiting cyclo-oxygenase enzyme activity

Note \the cyclooxygenease is the key enzymes in synthesis of the prostaglandins which are one of the mechanisms that protect the gastric mucosa from the digestion effect of excess secretion of pepsin and hcl through stimulation of bicarbonate secretion and inhibition of HCL secretion and increase the blood flow

4- Trypsinogen is activated to trypsin by the :

a) Removal of 5 A.As from the COOH-terminal

b) Removal of 6 A.As from the amino-terminal

c) Removal of 6 A.As from the COOH-terminal

d) Removal of 42 A.As from the amino-terminal

5- Abnormalities in digestion and absorption of proteins produce :

a) Chronic gastritis

b) Celiac disease

c) Steatorrhea

d) Lactase deficiency

Note\that the celiac disease is result from defect in the enzymes that responsible for digestion of wheat protein called gluten into large poly peptides that rich in glutamine amino acid which decrease the absorption capacity of small intestine to other nutrients that result in manifestations of malabsorption as steatorrhea

6- Gastrin that secreted from TG cells

a) Has inactive fragment in the last 5 A. As from the amino terminal

b) Its secretion increases sympathetically (fear and depression)

c) Its secretion increases in response to glucagon and calcitonin

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d) Its secretion increases by a chemical transmitter (GRP)

7- Colipase activates pancreatic lipase through:

a) Inhibition of bile salts

b) Activation of bile salts

c) Aggregation of bile salts

d) Binding to bile salts

8- Secretin hormone stimulates:

a) The duodenum to secrete enteropeptidase enzyme

b) Pancreatic secretion rich in enzymes

c) HCO3 secretion by bile ducts

d) contraction of gall bladder

9- Which of the following receptors stimulate HCL secretion

a) Histamine, acetylcholine, and gastrin receptors

b) Histamine, CSK, and secretin receptors

c) Acetylcholine, gastrin and secretin receptors

d) CSK, gastrin, and histamine receptors

10- Pepsin is an endopeptidase, specific for peptide formed by:

a) Lysine, leucine, and tyrosine

b) Lysine, phenylalanine, tyrosine and serine

c) Serine, glycine, and proline

d) Glycine, lysine, and proline

Note\ that the pepsin enzyme acts on the peptide bonds that contain the carboxyl group of the aromatic amino acids as tyrosine and phenylalanine as well as tryptophan

11-Gastric mucin:

a) Is a glycoprotein with LMW

b) Is secreted by chief cells

c) Develop of sickle cell anemia caused by its deficiency?

d) Acts as protection against development of gastric ulcer

12- Sympathetic effects on salivary glands:

a) Vasodilation

b) Secretion rich in mucus from submandibular gland

c) Watery secretion rich in ptyalin

d) Secretion of salivary lipase from lingual glands

13- Lipid esterase and phospholipase A2 activated by:

a) Colipase

b) Lipase

c) Bile salts

d) Cl , Br

14- HCL plays some role in regulation of gastric emptying through:

a) Entry of acidic chyme into the duodenum

b) Reflex inhibition of the entry of gastric secretion

c) A and B

d) None of the above

Note\ the entry of the acidic chyme into the duodenum stimulate the duodenal mucosa to? initiate the

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enterogastric reflex and secretion of the inhibitory hormones and both will decrease the gastric emptying as well as gastric secretion

15- The Di and Tri peptides absorption are undergo cytoplasmic

hydrolysis except Di and Tri peptides containing:

a) Glutamate, aspartate, and taurine

b) Proline, tryptophan, and alanine

c) Proline, hydroxyproline, and alanine .

d) Aspartate, alanine, and taurine

16- The pepsinogen to be activated to pepsin removal of:

a) 33 A.As from the amino-terminal remove

b) 44 A.As from the amino-terminal remove

c) 42 A.As from the amino-terminal remove

d) 24 A.As from the amino-terminal remove

17- One action of CCK:

a) Stimulates gastric secretion

b) Stimulates the duodenum to secrete enterokinase

c) Inhibits the pancreatic secretion ?

d) Stimulates the mucous secretion

Note , the enteropeptidase or the enterokinase is secreted by the intestinal mucosa under effect of CCK which is important for activation of trypsinogen into trypsin in the intestinal lumen

18- Pancreatic amylase hydrolyses starch, glycogen and dextrin to:

a) Lactose, maltotriose, and (1,4) oligosaccharides

b) Lactose, maltotriose, and (1,6) oligosaccharides

c) Maltose, maltotriose, and (1,4) oligosaccharides

d) Maltose, maltotriose, and (1,6) oligosaccharides

NOTE, the pancreatic amylase can exert its hydrolytic effect on the 1:4 glycosidic bond of the cooked starch and glycogen but not on the 1:6 bond

19- The main causes of duodenal ulcer is:

a) Increase production of somatostatin

b) Increase production of interleukin-1B

c) Decrease acid production

d) Local impairment of somatostatin production

NOTE, the Local impairment of somatostatin production allow the gastrin secreting cells to ?be released from the inhibitory effect of the somatostatin and increase the amount of gastrin hormone secretion which increase the amount of hydrochloric acid secretion that enter the duodenum and ulcers its delicate mucosa

20- Gastrin is:

a) Inhibitory hormone

b) Four types are identified

c) G34 is the most abundant and common

d) Its secretion is decreased by fear and depression

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21- Cyclo-oxygenase 1 constitutively expressed as :

a) Inflammatory enzyme

b) House-keeping enzyme

c) Expressed in some tissues as brain and ovary

d) Largely induced at site of inflammation

22- H.pylori secreted all of the following except:

a) Cytotoxin

b) Cycloxygenase

c) Lipase?

d) Mucolytic enzyme

23- All the following about celiac disease except:

a) Defect in enzyme required for digestion of peptide

b) One of causes of malabsorption syndrome

c) Abnormalities in carbohydrate absorption

d) Appears in early childhood

24-……..hormones that regulate GIT secretion:

a) Gastrin, serotonine, and CCK

B) Acetylcholine, gastrin, and secretin

c) CCK, gastrin, and secretin

d) Gastrin, histamine, and CCK

25- All the following about VIP except:

a) Present in endocrine cells

b) Vasodilator

c) Inhibits gastric secretion

d) Inhibits electrolytes and water secretion

26- Prostaglandin plays a major role in gastric protection as they stimulate:?

a) HCL, mucus, HCO3 secretion and decrease blood flow

b) HCO3, mucus secretion and decrease blood flow

c) HCO3, mucus secretion and increase blood flow

d) None of the above

27- People with cystic fibrosis have a greatly diminished ability to secrete:

a) HCO3 into the pancreatic juice

b) HCL into the gastric juice

c) All of the above

d) None of the above

28- The lingual lipase:

A) Enzyme prefers the hydrolysis of large chain triglycerides

b) Is very important in adult

c) Is unusual enzyme that its PH 4

d) Is unusual enzyme that its PH 6

29- If the flow of salivary secretion increase so:

a) The level of Na,K,Cl increase whilst the level of HCO3

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b) The level of Na,HCO3 ,Cl decrease whilst the level of K increase?

c) The level of Na,K,Cl decrease whilst the level of K constant

d) The level of Na, Cl,HCO3 increase whilst the level of K decrease

30- Steatorrhea can result from:

a) Obstruction of biliary truct due to gall stones

b) Spinal cord injury or pregnancy

c) Defective in digestion of protein

d) Defective in digestion of carbohydrate

NOTE, the reabsorption and digestion of the dietary lipids needs the bile salts which exert emulsification process and make micells with insoluble lipids but in case of biliary duct obstruction these salts is decreased so the lipids will be execreted in the stool

31- Regard Salivary alpha amylase:

a) Optimum PH 6

b) Hydrolysis starch to maltose by one step

c) Acts only on starch

d) Is activated by Cl and Br

32- Gastric mucin:?

a) Is a glycoprotein with LMW

b) Acts as an extrinsic factor for absorption of vitamin B12

c) Is secreted by the columnar epithelial cells of the stomach

d) Protection of the gastric mucosa from being digest by the pepsin

33- Gastrin secretion decreased by:

a) Protein hydrolysis

b) By glucagon and calcitonin

c) Distension of the antrum

d) Anger, anxiety and hostility

34- CCK stimulates the secretion of:

a) Enteropeptidase

b) HCO3 by bile ducts

c) Pancreatic secretion rich in mucus

d) HCL secretion from stomach

35- The gall bladder bile is:

a)More concentrated due to H2O absorption

b) High PH due to reabsorption of electrolytes ?

c) Low PH due to reabsorption of electrolytes

d) Low specific gravity

NOTE, the wall of gall bladder is preamble to Na and Cl so they will be reabsorbed and followed by water reabsorption so their concentration is decreased while that of bile salts is increased so the PH become low and this is necessary for the solubility of both cholestrol and Ca to prevent their accumulation in the form of stones

36- Histamine has the following characteristics except:

a) Bind to specific receptor on stomach

b) stimulate HCL secretion used adenylcyclase as a second messenger

c) Biogenic amine

d) Regulate GIT secretion

37- Secretin is:

a) A polypeptide of 17 A.As

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b) A hormone secreted by I cells

c) Depends on its secondary structure for its activity

d) The 04 of it's A.As are identical and in the same position to glucagon

A- HCO3 into the pancreatic juice

B-HCL into the gastric lumen

C- All the above

d- Non of the above

38- All the following about celiac disease except:

A-One cause of malabsorption

B-Defect with enzyme of digestion of peptide

C- Abnormality of carbohydrate absorption

D-Appearance in early child hood

39-Hormone that regulate the GIT secretion :

A- CCK, Secretin ,serotonin

B-Acetylcholine ,CCK, gastrin

C- Gastrin, Histamine ,secretin

D-CCK, gastrin, Secretin

40-All the following about VIP except:

A- Present in the endocrine cells

B- Inhibit the gastric secretion

C- Vasodilator

D-facilitate the inhibition of electrolyte and water

41-People with cystic fibrosis , diminished secretion of:

42-Prostaglandin play major role in gastric protection through :

A- HCO3 ,mucus and decrease blood flow

B-HCO3 ,mucus and increase blood flow

C- HCL ,mucus and Increase blood flow

D- All the above

43--Alkaline tide preferred to increase the ph in blood and urine after ingestion of meal due to:

A- HCO3 injected to the blood

B- HCO3 to the the blood for each one H pumped to the parietal cells

C- Arrival of excessive HCO3 into the blood with HCL formation

D-None of the above

44-HCL play some role in regulation of gastric emptying through:

A- Entry of acidic chyme into the duodenum

B- Reflex inhibition of the entry of gastric secretion

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C-A&B

d- Non of the above

45-Gastrin is:

A- Inhibitory hormone

B- G34 is the most abundant

C-It's secretion decreased by fear and depression

46- Secretion stimulates all the follow except:

A- Secretion of HCO3

B-Mucus secretion

C- Pancreatic enzymes Secretion

D- Inhibit of gastric secretion

47- Lingual lipase has property of:

A-Act on small chain of triglycerol

B- Work in acidic medium

48- Free (non-esterified) fatty acids in plasma

A-Account for less than 10 per cent of the total fatty acids in plasma

B- Are complexed with the plasma proteins

C- Decrease when the level of blood adrenaline rises.

D- Can be metabolized to release energy in cardiac and skeletal muscle

49- Modifying gastric function including all the following except:

A- By cutting vagal fibres to the pylorus increases the emptying rate

B-By enlarging the pyloric orifico increases the emptying rate. !

C- By making a side-to-side anastomosis between the stomach and jejunurn may cause peptic ulceration in the jejeunum.

D- To allow rapid gastric emptying may lead to low blood glucose levels after a meal E. To allow rapid gastric emptying may lead to a fall in blood volume and blood pressure

50- For each of the absorptive functions A-E, select the most appropriate absorption site from the following list of alimentary tract sites.

1. Stomach 2. Upper small intestine. 3. Lower small intestine.

4. Colon. 5. Rectum.

A. The site where most of the intestinal water is absorbed.

B. The site where most of the intestinal sodium is absorbed.

C. The main site of iron absorption. +5

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D. The main site of Vitamin B12 absorption.

E. The main site of bile salt absorption.

51-For each of the digestive functions A E, select the most appropriate digestive secretion in the following list of secretions.

1. Salivary secretion. 2. Gastric secretion. 3. Pancreatic secretion

4. bile. 5. Intestinal secretion.

A Splitting disaccharides.

B. Splitting triglycerides.

C- Absorption of vitamin B12.

D. Emulsification of fat.

E. Digestion of nucleic acids.

52-The lingual lipase is

a- Enzyme prefers the hydrolysis of large chain triglyceride.

b- Is very important in adult.

c-is unusual enzyme that it's PH 4.

d- is unusual enzyme that it's PH 6.

53- If the flow of salivary secretion increase so:

A- The level of Na+,cl-, increase whilst the level of HCO3.

b- The level of Na+,cl-,Hco3 decrease whilst the level of k increase.

c- The level of Na+, Cl-,k+ decrease whilst the level of k constant.

d- The level of Na+,cl-, Hco3 increase whilst the level of k decrease.

54-One function of gastric mucin is

a- Extrinsic factor essential for absorption of vitamin B12.

b- Buffering of gastric HCl.

c- Protection of gastric mucosal cells from being digested by trypsin.

55- The receptor that estimate the parietal cell to secrete HCl are:

a-Histamine, acetylcholine &gastrin receptor.

b- Histamine, cholecystokinin &gastrin receptor.

c- Acetylcholine, secretin& histamine receptor.

d- Cholecystokinin ,gastrin &secretin receptor .

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full the blanket:

1-Cholesterol stones caused by 1…….. 2……

2-Malabsorption can be defined as.....

3- Pancreatic juice secretion are stimulates by the .....and.....hormones.

4- bile acids synthesized in the liver from

5- phospholipase are digest of phospholipids to produce.....and... .... and. .....and.....

6- CO2 combines with H2O in presence of .....enzyme.

7-H-pylori protects itself by..... enzyme

8-acute pancreatitis may result when activation of enzyme occur in …….or ……

9-in case of…… failure of absorption of vit. B12 occurs with the development of .....

10- three receptors activator or inhibitor of HCL formation -……. -…….-……

11- HCL helps in iron absorption by……

12- acetylcholine can simulate the electrolytes through……. - ……

13- biogenic amines are ……and ……

14-primary bile acids in human bile are ……and…… or every ..... pumped in to lumen.....is released in to blood .

15-HCL formation in parietal cells depends on ……and…….

16-gastrin and CCK are similar in……

17- lipid and H inhibit gastric secretion by three ways ……-……-……..

18- glucose and galactose are absorbed by…….

19- celiac disease results from ……

20- Acute gastritis can be defined as…… while chronic gastritis can be defined as……

21- The action of secretin to stimulate the secretion of ……

22- Gastrin Secretion inhibited or decreased by……

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23- The site of carbohydrate digestion are

-……by …… enzyme

-…….by…… enzyme

-……by……..enzyme

24- Pepsin is an endopeptidase, specific for peptide bonds formed by……..While trypsin is specific to ……

25- For every H+ pumped in to the lumen a HCO3 is released into the blood and this is referred to as…….

26- Cholecystokinin secretion is stimulated by the presence of---------- While secretin secretion is stimulated by the ……

27-the intestinal enzymes are ……..-……..-……..

Essays :

Write short note on the following:

1-fate of absorbed fatty acid .

2-chronic pancreatitis

3- absorption of primary and secondary bile acid

4- Importance of colipase

5- Stimulation of insulin and glucagon secretion after protein meals (comment)

6-malabsorption syndrome

7-Rapid emptying of gastric content to the duodenal leading to duodenal ulcer.

Essays (35) :

Write short note on the following:

1- Steatorrhea
2- Alkaline tide
3- Secretion hormone
4- Cholagogoues

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Third: cellular respiration

Choose the most correct answer

1- Cell respiration involve all of the following except

a- formation of acetyl CoA

b- Formation of NADPH+H

c- Oxidation of NADH+H

d- Oxidation of FADH2

e- Oxidation of acetyl CoA

Answer: b

2- The terminate electrons accepter in respiratory chain is

a- Cytochrome C

b- FAD

c- Molecular oxygen

d- Coenzyme Q

e- A and C?

Answer: C

3- CO inhibits the transfer of electrons from

a- FADH2 to CoQ

b- Cyt. C to CoQ

c- Cyt. C to O2

d- NADH+H to CoQ

e- None of the above

Answer: C

4- CoQ accept electron from

a- NADH+H

b- NADPH+H

c- FADH2

d- A and C

e- All of the above

Answer: C

5- Transport of cytoplasmic NADH+H to matrix of mitochondria by:

a- Malate – asparate shuttle ?

b- Carnitine shuttle

c- Albumin

d- Tricarboxylate transport system

e- None of the above

Answer: a

6- Which of the following energy coupling hypothesis can explain mechanism of substrate level phosphorylation in the cytosol:

a- Chemiosmotic energy coupling hypothesis

b- Chemical energy coupling hypothesis

c- Conformational energy coupling hypothesis

d- B and C

e- All of the above

Answer: d

7- ATP can be formed in the cytosol by:

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a- Oxidation phosphorylation

b- Substrate level phosphorylation

c- Oxidation and substrate level phosphorylation ?

d- A and C

e- None of the above

Answer: B

8- Reduced from of COQ can be oxidation by the action of:

a- Cyt. Oxidase

b- NADH-COQ reductase

c- Succinate COQ reductase

d- Cyt C -COQ .reductase

e- None of the above

Answer: D

9- NADH COQ reductase catalyze the oxidation of:

a- NADPH+H

b- FADH2

c- NADH+H

d- Succinate

e- None of the above

Answer: C

10- The energy released when electrons transport from NADH+H to Cyt C is enough synthesis

a- 1 ATP

b- 2 ATP

c- 5 ATP

d- 3,46 ATP

e- 2,5 ATP

Answer: E

11- The inhibitor of electron transport from COQ to CYT.C is

a- Rotenone

b- Antimycine A

c- Amytal

d- CO

e- None of the above

Answer: B

12- Oxygen can be toxic when it accepts:

a- 4 electron and 4 proton

b- 2 electron and 2 proton?

c- 1 electron

d- B and C

e- All of the

Answer: C

13- Cell can detoxify superoxide radical by:

a- Enolase

b- Superoxide dismutase and glutathione peroxidase

c- Glutathione peroxidase and superoxide dismutase

d- Reductase and hydratase

e- None of the above

Answer: B

14- Which of the following observation can be explained by chemo-osmotic energy coupling hypothesis:

a- Oxidative phosphorylation requires an intact inner mitochondrial membrane

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b- Electron transport results in transport of protons out of inner mitochondrial thereby creating a measurable electrochemical gradient across the inner mitochondrial membrane

c- Oxidative phosphorylation does not require an intact inner mitochondrial membrane

d- A and B

Answer: D

15- molecular oxygen (O2)

a- is used for oxidative Phosphorylation

b- used for hydroxylation oxygenation reaction

c- used to produce free radical

d- all of the above

Answer: A

16- characteristic of free radical

a- long lived

b- unstable

c- inactive

d- B,C

Answer: B

17- Reactive species

a- Include free radicals and oxidant

b- Increase during chronic infection?

c- Increase during sternous exercise

d- All of the above

Answer: D

18- Endogenous antioxidant

a- Uric acid

b- Vit.E

c- Lycopens

d- Carotenoids

Answer: A

19- Oxidation

a- Is gain of electron

b- Loss of hydrogen

c- Loss of oxygen

d- All of the above

Answer: B

20- Characteristic of free radicals

a- Short lived?

b- Stable

c- Inactive

d- B,C

Answer: A

21- Free radicals

a- Increase free radicals and antioxidants

b- Increase during chronic infection

c- Decrease during sternous exercise

d- All of the above

Answer: B

22- The following complexes act as a proton pump exxept:

a- Complex I

b- Complex II

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c- Complex III

d- Complex IV

Answer: B

23- The rate of tissue respiration is raised when intracellular concentration of?

a- ADP increases

b- ATP increases

c- ADP decrease

d- None of these

Answer: A

24- Oxidase

a- Catalyze the removal of hydrogen from substrates

b- Use oxygen as hydrogen acceptor

c- Produce water or hydrogen peroxide

d- All of these

Answer: D

25- Inhibitors for Complex III

a- Amytal

b- Cyanide

c- Antimycin

d- Carotenoids

Answer: C

26- Uncouplers

a- Compounds dissociate oxidation in respiratory chain from phosphorylation

b- 2,4 Dinitrophenol

c- A,B

Answer: C

27- Which of the following component of respiratory chain is not attached to the inner

mitochondrial membrane

a- Coenzyme Q

b- Cytochrome C

c- A ,B

d- None of the above

Answer: C

28- Substrate level phosphorylation means

a- Formation of ATP in the respiratory chain

b- Formation of ATP from high energy compound

c- Formation of NADH+H from oxidation of food stuff

d- None of the above

Answer: A

29- The transfer of reducing equivalents through respiratory chain depends upon

a- The difference in their redox potential

b- Their content of iron in the form of ferrous

c- Their molecular weight

d- All of the above

30- When the (G) is negative that means

a- The reaction can proceed spontaneously

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b- The reactant has more energy than the product
c- The reactant has less energy than the product

Answer: A

31- The group of oxidoreductase which cytochrome P450 is related

a- Oxygenase

b- Dehydrogenase

c- Oxidase

d- Hydroperoxidase

Answer: B

32- All of the following are antioxidants excepts

a- H2O2

b- Vitamin C

c- Vitamin E

d- Catalase enzyme

Answer: A

33- The protein complex is found in

a- Outer membrane

b- Inner membrane

c- Inter membrane spaces

d- Mitochondria

Answer: B

34- Substrate linked phosphorylation occur in

a- Glycolytic pathway

b- Urea cycle

c- Fatty acid synthesis

d- None of the above

Answer: D

35- Hydrogen peroxide may be detoxified

a- Glutathione reductase

b- Catalase

c- Superoxide dismutase

d- All of the above

Answer: D

36- The more positive the Eθ the greater the tendency of the oxidant member of that pair to

a- Loss electrons

b- Gain electrons

c- Loss and gain electrons

d- Loos or gain electrons

Answer: B

37- All of the following statements about ATP synthase are correct except

a- Is a large complex formed from two subunit F1 ,Fo

b- Catalyzes the formation of ATP

c- Is inhibited by cyanide ?

d- Can exhibit ATPase activity

Answer : D

38- An increase in oxidative damage to DNA ,protein and lipid mat lead to disease such as

a- Atherosclerosis

b- Diabetes

c- Cancer

d- All of the above

Answer : D

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39- An important lipid soluble vitamin act as antioxidant is

a- Vitamin C

b- Vitamin E

c- Vitamin B12

d- Vitamin K

Answer: B

40- Amytal barbiturate is used as sedative drug which may inhibit ATP production by inhibiting

a- Complex I?

b- Complex II

c- Complex III

d- Complex IV

Answer: A

41- Reduction

a- Is gain in electron

b- Loss of hydrogen

c- Gain of oxygen

d- All of these

Answer: A

42- Exogenous antioxidants

a- Vitamin E

b- Ascorbic acid

c- Metal binding protein

d- A,B

Answer: D

43- Inhibitor for complex 4?

a- Amytal

b- Cyanide

c- Antimycin

d- Corotenoids

Answer: B

44- Reactive oxygen species (ROS) include

a- Nitric oxide NO

b- Nitrogen dioxide NO2

c- Nitrogen acid HNO3

d- None of the above

Answer: A

45- Interaction of hydroxyl radical OH- with purine will generate

a- 8 hydroxy deoxy guanosine

b- Carbonyl C=O groups aldehydes, ketones

c- Malondialdehyde

d- Citrilline

46- When inhibitors bind to the respiratory chain?

a- ATP synthesis stop

b- Proton pumping into the inter membrane space stop

c- The components after the side of block still oxidized

d- All of the above

Answer: D

47- Catalase enzyme is a member of

a- Monooxygenase

b- Dehydrogenase

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c- Hydroperoxidase

d- Oxidase

Answer: C

48- The most powerful natural antioxidant is

a- Vitamin C

b- Caffeine

c- B-carotene

d- Vitamin E

Answer: D?

49- H_2O_2 is considered as free radical due to

a- It is present in high concentration

b- It is highly reactive molecule

c- All of the above

d- It is toxic radical

Answer: C

50- The oxidation reduction system having the highest redox potential is

a- Ubiquinone ox/red

b- Fe^{3+} cytochrome a/Fe^{2+}

c- Fe^{3+} cytochrome b/Fe^{2+}

d- NAD^+/NADH

51- The compound having the lowest redox potential among the following is

a- Hydrogen

b- NAD

c- Cytochrome b

d- Cytochrome a?

Answer: A

52- All of the following compounds are members of electron transport chain except:

a- Ubiquinone

b- Carnidine

c- NAD

d- FAD

Answer: B

53- The correct sequence of cytochrome carrier in respiratory chain is

a- Cyt b - cyt c- cyt c1 – cyt a3

b- Cyt a3 - cyt b- cyt c – cyt c1

c- Cyt b - cyt c1- cyt c – cyt a3

d- Cyt b - cyt a3- cyt c1 – cyt c

Answer: C

54- A compunant of the respiratory chain in mitochondria is

a- Coenzyme Q

b- Coenzyme A

c- Acetyl coenzyme?

d- Coenzyme containing thiamin

Answer: A

55- The negative standard reduction potential of redox pair such as NAD/NADH has a greater tendency to

a- Lose electron

b- Gain electron

c- Lose or gain electron

d- Lose and gain electron

Answer: A

56- In the endergonic reaction process

a- This process occur spontaneously

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b- This process need energy

c- This reaction is reversible

d- The free energy of product is more than reactant

Answer: D

57- When antimycin A inhibitor present

a- Cyt C remain oxidized?

b- Complex I inhibited

c- Complex II inhibited

Answer: A

58- At sites of phosphorylation in the respiratory chain the minimum difference in the redox potentials of two consecutive component is

a- 0.2 mv

b- 0.2 v

c- 0.42 mv

d- 0.42 v

59- When reducing equivalents enter the respiratory chain through NAD the P/O ratio is

a- 1:2

b- 2:1

c- 1:3

d- 3:1

Answer: D

60- Cyanide inhibits phosphorylation at

a- Site I?

b- Site II

c- Site III

d- None of these

Answer: D

61- F0 component of vectorial ATP synthetase is inhibited by

a- Dinitrophenol

b- Rotenone

c- Cyanide

d- Oligomycin

Answer: D

62- Uncouplers of oxidative phosphorylation

a- Inhibit F0 component of vectorial ATP synthetase

b- Inhibit F1 component of vectorial ATP synthetase

c- Make the inner mitochondrial membrane permable to H+

d- Inactive cytochromes

Answer: C

63- Cytochrome oxidase is poisoned by all the following except?

a- Co

b- Hydrogen sulphide

c- Oligomycin

d- Cyanide

Answer: C

64- The following reaction can be considered as oxidation

a- Fe3++electron →Fe2+

b- Cu2++electron →Cu+

c- Fe2+→Fe3++electron

d- None of the above

Answer: C

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65- The number of ATP produced in the oxidation of 1 molecule of NADPH in oxidative phosphorylation is

a- Zero

b- 2

c- 3

d- 4?

Answer: A

66- Cytochrome oxidase contains:

a- Zn2+

b- Fe2+

c- Mn2+

d- Cu2+

Answer: D

67- Respiratory chain is inhibited by all of the following except

a- Increase NADH+H

b- Increase ATP

c- Increase Acetyl CoA

d- Increase TTP
Answer: A

68- All of these processes occur in mitochondria except

a- Citric acid cycle

b- Oxidative phosphorylation

c- Ketogenesis ?

d- Glycolysis

Answer: D

69- The function of cyt C in complex IV is

a- Transfer of electron to O2 to form H2O

b- Pump proton

c- Both a,b

d- None of these

Answer: C

70- The electrochemical gradient across the inner mitochondrial membrane caused by

a- The inner mitochondrial membrane become permeable to proton

b- The outer mitochondrial membrane become permeable to proton

c- Proton pump across the inner membrane

Answer: C

71- The coenzyme Q is transferred to ubiquinol by

a- Adding one electron and one proton

b- Adding 2 electrons and 2 protons

c- Adding 2 protons?

d- Adding 2 electrons

Answer: D

72- Which of the following is endogenous source of free radicals

a- Electron transport chain

b- Oxidant enzymes

c- Bacterial infection

d- All of the above

Answer: D

73- A mobile carrier molecule in respiratory chain is

a- CoQ

b- Cyt a

c- Cyt b

d- Cyt a3

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Answer: A

74- oxidation reduction potential

a- depend on the number of electrolytes in the reaction

b- it is the affinity of a substrate to accept electrons?

c- both a,b

d- none of these

Answer: B

75- ATP is important for all of these except

a- Muscle contraction

b- Synthesis of macromolecules

c- Support the exergonic reaction

d- Active transport across membranes

Answer: C

76- The free energy change (ΔG0

) depends on

a- The nature and concentration of initial reactants only

b- The nature and concentration final products only

c- The nature and concentration of the initial reactants and final products

d- None of the above

Answer: C

77- The outer mitochondrial membrane?

a- Contain the electron transport chain

b- Is deeply invaginated to produce a large surface area

c- Contains acyl CoA synthetase

d- Contains the tricarboxylic acid cycle enzymes

Answer: C

78- The relative concentration of ATP and ADP control the cellular rate of

a- Glycolysis

b- Oxidative phosphorylation

c- Citric acid cycle

d- All of the above

Answer: D

79- The first step of oxidation and NADH+H

a- 4 electrons transfer to CoQ

b- 2electrons and 2 protons transfer to FMN

c- 2 electrons only transfer to FMN

d- 4 protons transfer to Cyt C

Answer: B?

80- Oxidizing or reducing agents may exist as

a- Oxidant form only

b- Reduced form

c- Conjugate pair of oxidant and reductant form

d- None of the above

Answer: C

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81- Enzymes catalyzes transfer and incorporated of oxygen into substrate are

a- Oxidase

b- Oxygenase

c- Catalase

d- Peroxidase

Answer: B

82- In the respiratory chain the relatively most electropositive molecule is

a- NADH+H+

b- FMN

c- Cyt b

d- O2

Answer: D

83- Which of the following statement about energy conservation in mitochondria is false

a- Drugs which inhibit ATP synthase will also inhibit flow of electrons

b- The yield of ATP per mole of oxidizable structure depends on the substrate

c- Uncouplers have exactly the same effect on electron transfer as inhibitors

d- None of the above

Answer: D

84- Oligomycin

a- Bind to the F0 of the ATP synthase

b- Prevent thrombosis

c- Is uncoupler

d- Both A,C

Answer: D

85- Almost all of oxygen one consumes in breathing is converted to

a- Acetyl CoA

b- Carbon dioxide

c- Carbon monoxide then dioxide?

d- None of the above

Answer: D (water)

86- In normal mitochondria the rate of NADH oxidation will

a- Be increased in active muscle and decrease in inactive muscle

b- Be very low if ATP is inhibited

c- Decrease if mitochondrial ADP is depleted

d- All of the above

Answer: D

87- During oxidative phosphorylation the proton motive force that is generated by electron transport is used to

a- Create a pore in the inner mitochondrial membrane

b- Induce a conformational change in the ATP synthase

c- Oxidize NADH to NAD

d- Reduce O2 to H2O

Answer: B

88- The following reaction

2 + O-

2 + 2H+ → H2O2 + O2 is catalyzed by

a- Superoxide dismutase

b- Glutathione peroxidase

c- Catalase

d- Glutathione reductase

Answer: A

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89- In some reactions the energy captured in the form of

a- UTP

b- CTP

c- GTp

d- All of the above

Answer: D

90- Cytosolic glutathione peroxidase contains

a- Selenium

b- Manganese?

c- magnesium

d- cooper

Answer: A?

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